

INCH-POUND

MIL-H-24135/1A(SH)
3 September 1993
SUPERSEDING
MIL-H-24135/1(SH)
18 July 1986

MILITARY SPECIFICATION

HOSE, SYNTHETIC RUBBER, WIRE REINFORCED, FOR FLEXIBLE HOSE ASSEMBLIES (DOUBLE WIRE BRAID OR TWO-SPIRAL AND ONE-WIRE BRAID, HIGH PRESSURE SIZES -4 THROUGH -32)

This specification is approved for use within the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers synthetic rubber hoses, reinforced with two braids of wire or two spiral and one wire braid in sizes -4 through -32 for high pressure fluid applications.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 03Q42, 2531 Jefferson Davis Hwy, Arlington, VA 22242-5160 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4720

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SPECIFICATIONS

MILITARY

- MIL-F-24787 - Fittings, End, Reusable for Flexible Hose Assemblies, General Specification for.
- MIL-L-2104 - Lubricating Oil, Internal Combustion Engine, Tactical Service.
- MIL-L-17331 - Lubricating Oil, Steam Turbine and Gear, Moderate Service.
- MIL-H-24135 - Hose, Synthetic Rubber, Wire Reinforced, For Flexible Hose Assemblies, General Specifications for.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specifications, specification sheets or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Hose furnished under this specification shall conform to the requirements of MIL-H-24135 and as specified herein.

3.2 Material.

3.2.1 Hose. Rubber compounds used shall be resistant to petroleum base oils and sea water and shall consist of synthetic rubber or a blend of synthetic rubbers and shall meet the requirements of MIL-H-24135 and as specified herein.

3.3 Reinforcement. Reinforcement shall consist of two-wire braids or two spiral and one-wire braid applied in such a manner as to meet all the requirements of this specification.

3.4 Dimensions and pressures. Hose dimensions shall be in accordance with table I and hose pressures shall be in accordance with table II.

TABLE I. Hose dimensions.

Hose size (dash no.)	Hose dimensions (inches)						Minimum bend radius (inches)
	ID tube		OD reinf		OD cover		
	min	max	min	max	min	max	
-4	0.242	0.273	0.477	0.523	0.657	0.719	4
-6	0.367	0.398	0.633	0.679	0.813	0.875	5
-8	0.485	0.531	0.750	0.812	0.938	1.000	7
-10	0.610	0.656	0.875	0.938	1.063	1.125	8
-12	0.735	0.781	1.031	1.093	1.219	1.281	9.5
-16	0.985	1.040	1.344	1.406	1.516	1.609	12
-20	1.235	1.297	1.779	1.797	1.938	2.062	16.5
-24	1.485	1.574	1.969	2.047	2.188	2.312	20
-32	1.985	2.047	2.435	2.547	2.688	2.812	25

TABLE II. Hose pressures and weight.

Hose size (dash no.)	Pressure (psi)		Impulse peak pressure (psi)	Approximate wt/ft (lbs/ft)
	Working (max)	Burst (min)		
-4	5,000	20,000	7,500	0.33
-6	4,000	16,000	6,000	0.45
-8	3,500	14,000	5,250	0.58
-10	2,750	11,000	4,125	0.63
-12	2,250	9,000	3,375	0.80
-16	2,000	8,000	3,000	1.04
-20	1,625	6,500	2,438	1.85
-24	1,250	5,000	1,875	2.03
-32	1,125	4,500	1,687	2.60

4. QUALITY ASSURANCE PROVISIONS

4.1 Quality assurance provisions shall be in accordance with MIL-H-24135 and as specified herein.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of the manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Sampling for qualification testing.

4.2.1 Hose. Qualification testing of hose shall consist of hose samples as specified in table III. Samples shall be not less than 15 inches in length and shall be fitted with end fittings qualified to MIL-F-24787.

4.2.1.1 End fitting qualification. End fittings used for the qualification of hose to this specification shall be fittings qualified to group I, MIL-F-24787. Where there are no previously qualified end fittings, the prospective hose supplier shall work together with a prospective fitting supplier to qualify their respective products. (The fitting supplier and hose supplier may be a single source.)

TABLE III. Hose samples required.

Hose size (dash no.)	No. of hose samples to be provided
-8	4
-32	5

4.2.1.2 The quantity of end fittings required shall be in accordance with table IV.

TABLE IV. End fittings required.

End fitting size (hose dash no.)	No. of end fitting samples to be provided
-8	8
-32	10

4.2.2 End fitting mix. Where there are two or more qualified suppliers of end fittings to group I of MIL-F-24787, the sample end fitting mix shall be in accordance with table V. Where there is only one previously qualified supplier, the "previously qualified" samples shall come from that supplier.

TABLE V. Hose and fitting mix for combined qualification, or where there is more than one qualified fitting source.

One approved source					
Hose size (dash no.) <u>3/</u>	No. of hose samples to be provided		End fitting <u>4/</u> (hose dash no.) <u>3/</u>	No. of end fittings <u>4/</u> to be provided	
	Qualifier <u>2/</u>	Appvd <u>1/</u> source		Qualifier <u>2/</u>	Appvd <u>1/</u> source
-8	2	2	-8	4	4
-32	3	2	-32	5	5

Two or more approved sources			
Hose size (dash no.)	Number of hose samples to be provided by		
	Qualifier <u>2/</u>	Approved <u>1/</u> source #1	Approved <u>1/</u> source #2
-8	2	1	1
-32	3	1	1
End fitting size (dash no.)	Number of end fittings to be provided by		
	Qualifier <u>2/</u>	Approved <u>1/</u> source #1	Approved <u>1/</u> source #2
-8	4	2	2
-32	5	3	2

(Hose samples shall be not less than 15 inches in length and shall be coupled on one end with the fitting being submitted for qualification and on the other end with previously qualified end fittings.)

- 1/ Approved source - Previously qualified hose and fitting, or hose or fitting.
- 2/ Qualifier - Offeror of hose and fittings, or hose to be qualified.
- 3/ Satisfactory completion of qualification testing of the samples selected in accordance with tables III, IV and V will qualify the manufacturer for all sizes in this associated detail specification.
- 4/ End fittings shall be in accordance with MIL-F-24787.

4.2.3 Hose and end fittings combined. In the event that a contractor for hose and end fittings or a hose contractor and a fitting contractor desire to qualify hose to this associated detail specification and fittings to Group I, MIL-F-24787 in a combined qualification test, the samples required for testing shall be in accordance with table V.

4.2.4 Sample requirements when there are less than two previously qualified suppliers. Where there is only one qualified source for qualified samples, all the "previously qualified" samples required shall come from that source. Where there are no previously qualified source, all samples of hose and fittings shall be submitted by the prospective qualifier(s).

4.2.5 Sequence of tests on sample hose assemblies shall be as specified in table VI.

TABLE VI. Sequence of qualification tests on sample assemblies.

Test sequence (see MIL-H-24135)	Sample numbers								
	Size -8				Size -32				
	1	2	3	4	5	6	7	8	9
Proof Pressure (see 4.6.1)	X	X	X	X	X	X	X	X	X
Stability test (see 4.6.2)	X	X	X	X	X	X	X	X	X
Aging test (see 4.6.3)	X	X	X		X	X	X		
Hydraulic fluid circulation (see 4.6.4)		X				X			
Impulse test (see 4.6.5)				X				X	X
Burst test (see 4.6.6)	X				X				
Cold temperature flexibility (see 4.6.8)			X				X		

4.3 Test fluid. The test fluid shall be petroleum base oil in accordance with MIL-L-17331 or MIL-L-2104 for the aging, hydraulic fluid circulation, impulse and cold temperature tests.

4.4 Impulse pressure. The peak pressure for the dynamic impulse test shall be 150 percent of the maximum working pressure in accordance with table II. Impulse test for 150,000 cycles. The pressure time curve shall be in accordance with figure 3 of MIL-H-24135.

5. PACKAGING

5.1 Packaging requirements shall be in accordance with MIL-H-24135.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. Hose to this specification is intended for use in shipboard or shore to ship piping systems where pressures do not exceed the rated working pressure, and temperatures do not exceed minus 40°F or plus 200°F.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1 and 2.1.1).
- (c) Size hose.
- (d) Quantity of hose (linear feet) per size.
- (e) Type and size of end fitting for hose assembly (see MIL-F-24787).

6.3 Subject term (key word) listing.

Sea water
Petroleum
Test fluid
Group I

6.4 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Preparing activity:
Navy - SH
(Project 4720-N026-1)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the comment number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of this form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-H-24135/1A(SH)

2. DOCUMENT DATE (YYMMDD)
930903

3. DOCUMENT TITLE

HOSE, SYNTHETIC RUBBER, WIRE REINFORCED FOR FLEXIBLE HOSE ASSEMBLIES (DOUBLE WIRE BRAID OR TWO-SPIRAL AND ONE-WIRE BRAID, HIGH PRESSURE SIZES -4 THROUGH -32

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

A. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)
(1) Commercial
(2) DSN
(if applicable)

7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

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